ABSTRACT

A binary type diffractive optical element for scalar optics uses a composite artificial material comprising, in a first portion Ma_1, microstructures according to a first geometry for which the effective index decreases with the fill factor and, in a second portion Ma_2, microstructures according to a second geometry for which the effective index increases with the fill factor. In one example, a composite artificial material is thus formed by hole type microstructures over a first portion, the smallest hole giving the maximum effective index value of said composite artificial material, and pillar type microstructures, the smallest pillar giving the minimum effective index value of said composite artificial material.